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1913/14

BULLETIN OF THE STATE

# University of Kentucky

VOL. V

JULY, 1913

NUMBER 7



KENTUCKY

UNIVERSITY OF ILLINOIS

JUN 18 1913

PRESIDENT'S OFFICE

## GRADUATE SCHOOL

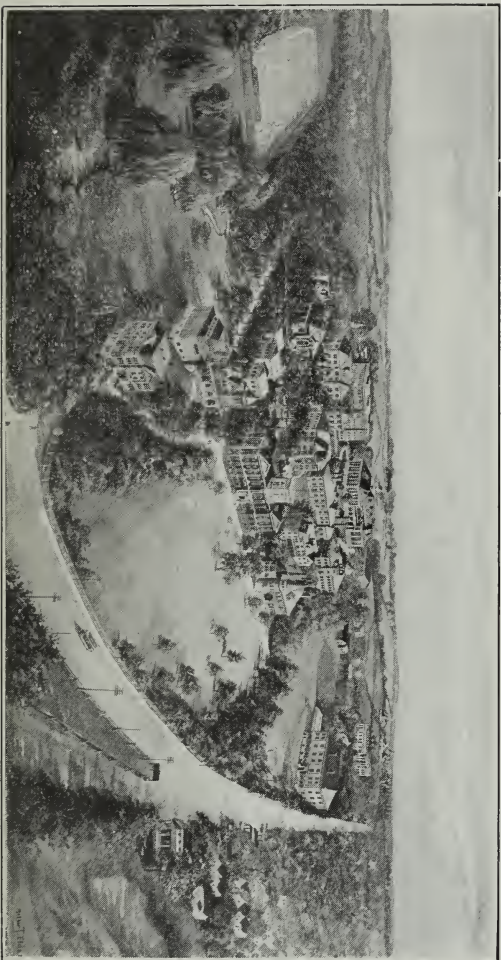
1913-1914

Published Monthly by the University of Kentucky  
Lexington, Ky.

Entered as second class matter December 29, 1908, at the Post Office, Lexington, Ky.  
under the Act of July 16, 1894.

UNIV. OF KENTUCKY - GRADUATE SCHOOL  
1913-14.





UNIVERSITY OF KENTUCKY  
LEXINGTON



GRADUATE SCHOOL  
OF THE  
STATE  
UNIVERSITY OF KENTUCKY

FOR THE  
SESSION ENDING JUNE 4, 1914

UNIVERSITY OF ILLINOIS

JUN 18 1913

PRESIDENT'S OFFICE

LEXINGTON  
PUBLISHED BY THE UNIVERSITY  
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## THE GRADUATE SCHOOL.

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<i>Names and Addresses</i>	<i>Term Expires</i>
HON. CASSIUS M. CLAY, Paris.....	January, 1914
HYWEL DAVIES, Kensee.....	January, 1914
RICHARD C. STOLL, Lexington.....	January, 1914
LOUIS L. WALKER, Lancaster.....	January, 1914
RICHARD N. WATHEN, Lebanon.....	January, 1914
HON. JAMES BREATHITT, Hopkinsville.....	January, 1916
THOMAS LEWIS EDELEN, Frankfort.....	January, 1916
CHARLES B. NICHOLS, Lexington.....	January, 1916
JAMES K. PATTERSON, Lexington.....	January, 1916
JAMES W. TURNER, Paintsville.....	January, 1916
ROBERT W. BROWN, Louisville.....	January, 1918
HON. TIBBIS CARPENTER, Scottsville.....	January, 1918
HON. WILLIAM H. COX, Maysville.....	January, 1918
DENNY P. SMITH, Cadiz.....	January, 1918
HON. CLAUDE B. TERRELL, Bedford.....	January, 1918



## THE GRADUATE SCHOOL.

A. S. MACKENZIE, DEAN.

### GENERAL INFORMATION.

#### Organization.

For a number of years several Departments have offered advanced work leading to a Master's degree in Arts or Science or to a second degree in Engineering. At its annual meeting in May, 1912, the Board of Trustees of this University, acting upon the suggestion of the President, formally authorized the organization of a Graduate School, and thereafter the President appointed an Executive Committee, whose chairman is the Dean. The Graduate School has exclusive control of all graduate work done in the University.

#### Facilities.

The scientific laboratories are the best equipped in the commonwealth, some of them comparing favorably with those of similar institutions in the Middle West.

The libraries comprise the General Library, the Agricultural, Engineering and Law Libraries as well as those of the various departments of the College of Arts and Science. Graduate students may also consult the public libraries of Lexington, Louisville and Cincinnati. Arrangements are being made whereby the extensive collections of some of the older institutions of learning may be freely consulted.

Even now, however, students find that one of the chief assets of the Graduate School is the opportunity for direct supervision of their work by men who have been trained and recognized by Universities such as Cornell, Edinburgh, Glasgow, Goettingen, Harvard, John Hopkins, McGill, Oxford, Pennsylvania, Purdue, Wisconsin and Yale.

As far as possible, it is intended to institute Fellowships exclusively for worthy students who are pursuing a regular line of work in the Graduate School.

#### Aims.

Every person in Kentucky or elsewhere, provided he has the aptitude and the necessary training, is welcomed to the Graduate School. The object

of undergraduate training is to enable the student to survey with understanding and enthusiasm the field already partially explored and to give him some appreciation of the problems that await solution. The object of the Graduate School is to make sure that the field of the known has been surveyed with reasonable thoroughness and then to guide the student toward the mastery of some really worthy problem that may render the general body of ascertained knowledge more intelligible.

In other words, for years the student, as his very name implies, indulges in search before he attempts research, and many a man secures his bachelor's degree who is innocent of that poise, that undying mental curiosity and brain power which are requisite in the critical study of achieved results or in any serious investigation. It is the purpose of this school to establish a reputation for sane scholarship, and to maintain without pretentiousness a standard of enlightened specialization so far as our means and intelligence permit.

### **Candidacy and Residence.**

1. Candidates for a higher degree, whether resident or non-resident, will first communicate with the Dean of the Graduate School.

2. No graduate students will be regarded as candidates for a degree, unless admitted to candidacy by the Executive Committee of the Graduate School.

3. Registration for study in absence is permissible only to accepted candidates for advanced degrees. Residence wherever a student may be directed by the Graduate School Committee to prosecute systematic investigation is regarded as residence at this university.

4. No summer work will at present be recognized unless such work is prearranged with the Dean of the Graduate School.

5. Every graduate student in residence, whether a candidate for a degree or not, must be in actual attendance on at least one regularly authorized course of instruction; and this attendance must amount to at least four hours a week exclusive of thesis work.

6. Prior to matriculation all prospective graduate students, resident or non-resident, must receive the sanction of the Graduate School Committee. Prior to the assignment of work each student will submit a receipt from the Registrar showing that the fee of \$10.00 has been paid.

7. Every graduate student who is a candidate for a higher degree must file with the Secretary of the Graduate School, at least eight months before the time proposed for examination, a detailed schedule of studies on which the candidacy is based.

## REQUIREMENTS FOR DEGREES.

### The Master's Degree.

1. For major work the course or courses must be strictly graduate courses. The minor or minors may be such courses as will best contribute to the efficiency of the major study.

2. The student must be in residence at least one year or for three summer terms in courses approved by the Graduate School Committee. Non-resident students will do three years' work, part of which must be spent at this university in consultation and examination. Instructors under whom graduate work is being done will in January and May of each year submit to the Committee a report of work done by the candidate as well as the outcome of the examination in residence. At any time a candidate may be debarred from the privileges of the Graduate School for inefficiency. At stated intervals all resident students will appear for consultation before the committee.

3. In every instance the thesis, typewritten or printed, must be approved (a) by the major professor, (b) by the Graduate School Committee, and (c) by one or more specialists in the older institutions of learning.

4. The corresponding bachelor's degree must have been taken before a candidate in residence may hope for the master's degree. For instance, if a Bachelor of Science desires the degree of Master of Arts he must make up all the necessary undergraduate work before he can be regarded as a regular member of the Graduate School. No bachelor of arts from any institution, however exalted, can become a candidate for the degree of A. M., unless he has studied collegiate Latin in a satisfactory manner.

### Degrees in Engineering.

1. A candidate for the degree of Civil Engineer must hold the Bachelor's degree from the College of Civil Engineering of this university, or must have pursued successfully at some reputable institution a course of study equivalent to the degree of B. C. E. conferred by this university.

2. A candidate for the degree of Mechanical or Electrical Engineer must hold the Bachelor's degree from the College of Mechanical and Electrical Engineering of this university, or must have pursued successfully at some reputable institution a course of study equivalent to the degree of B. M. E. conferred by this university.

3. A candidate for the degree of Mining Engineer must hold the Bachelor's degree from the College of Mines and Metallurgy of this university, or must have pursued successfully at some reputable institution a course of study equivalent to the degree of B. M. E. conferred by this university.

4. Second degrees are conferred upon such graduates of the Colleges of Engineering of this university as have been engaged in acceptable professional work away from the university for at least three years after receiving the Bachelor's degree, or upon graduates of this university or of universities of equal standing engaged in prearranged residence work at the university for at least one year after receiving the Bachelor's degree.

5. At least two months before the date when second degrees in engineering are conferred, each candidate must submit a thesis which will satisfy (a) the major professor and (b) the Graduate School Committee.

### **The Doctor's Degree.**

1. No student will be enrolled as a candidate for a doctor's degree until he has been in residence as a graduate student for at least one year. This rule may be waived in the case of those who have taken the Master's degree at another reputable university.

2. Candidates who hold the Master's degree may complete the work required for the degree of Ph. D. within three years, although this is the minimum. This degree will not be conferred for faithful work merely, but for original and worthy investigation.

3. No student will be regarded as a candidate for the degree of Doctor of Philosophy who has not a good reading knowledge of French and German as well as any other languages essential for the mastery of his special line of work.

4. The thesis must prove satisfactory to (a) the major professor, (b) the Graduate School Committee, (c) two or more independent specialists in two or more independent institutions of repute. After it has received the foregoing triple sanction, the thesis will be printed, one hundred and fifty copies of which will be used for exchange with the university libraries.

## **DEPARTMENTS OF INSTRUCTION.**

### **CHEMISTRY.**

*Professors Tuttle and Maxson.*

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### **EDUCATION.**

*Professor Noe.*

For courses in this Department open to undergraduates and graduates, see, in the preceding portion of the catalogue, Courses VIII, XII, XIII and XV (v. page 101).

**XVI. Seminary in Educational Problems.** Investigation of some problems in educational psychology and some practice in experimental education. The class will meet weekly for a two-hour session. Time to be arranged. For graduates only. (NOE)

**XVII. Seminary in Administration and Supervision.** Special topic for 1913-1914 *Rural Education*. The work will consist chiefly of individual studies and reports. The class will meet weekly for a two-hour session. Primarily for graduates. Time to be arranged. (BOHANNAN)

## ENGLISH AND COMPARATIVE LITERATURE.

*Dean Mackenzie.*

The following courses are for graduate students exclusively.

### ENGLISH LANGUAGE.

**I-g. English Philology.** Keltic and Norse elements in our language and their influence on syntax, orthography, etc.

**II-g. English Philology.** Hebraic and Hellenistic traces in English syntax; loan-word fallacies; the rise of Scots, etc.

**III-g. Comparative Philology.** Elements of Gothic, Sanskrit or Hebrew compared with some modern languages.

**IV-g. Textual Criticism.** Dialects, etc.

**V-g. Special Study.** Instructors are ready to assist and advise competent students who may suggest plans of special study which receive the sanction of the Department.

### ENGLISH LITERATURE.

**VI-g. Literary Problems.** Details will be arranged by consultation.

### COMPARATIVE LITERATURE.

**VII-g. Methodology.**

**VIII-g. Bibliography of a Type.**

**IX-g. Origin of Poetry.**

**X-g. Magic Songs and Hymnography.**

**XI-g. Special Study.** Literary work, satisfactory to both student and instructor, may be determined by consultation with the Head of the Department.



**GEOLOGY.**

*Dean Miller.*

Professor A. M. Miller will gladly answer inquiries from prospective graduate students in Geology. Work may be arranged after consultation.

**LATIN.**

*Professor Jones.*

**XI. Roman Satire.** The History of the development of satire will be traced and the following authors will be read in whole or in part: Ennius, Lucilius, Horace, Petronius, Persius, Seneca, Juvenal.

**GREEK.**

*\*Professor Terrill.*

**VIII. Plato and Aristotle.** Plato's Republic will be studied the first half year. A close and analytical study will be made of this famous work. Special attention will be given to Plato's ideas on education, socialism, attitude toward the fine arts and other points of striking interest. Lectures by the professor and papers by the students on special topics.

Aristotle's Politics will form the basis of the work in the second half year. This will be read in connection with the recently discovered constitution of Athens. These two courses will be a study in the science of Government and Politics as conceived by the two greatest Greek writers on these subjects. These two works are among the world's great classics on the subjects treated, and can never be out of date so long as human nature is constituted as it is.

**HISTORY AND POLITICAL ECONOMY.**

*Professor Tuthill.*

**HISTORY.**

Graduate students seeking the Master's degree must first complete the college courses numbered I, III, and IV, or their equivalents. They should also present one college course in the history of the United States, or a course

\*Absent on leave during 1912-1913.

which treats of American Government, such as Political Science I. In addition, one or more foreign languages will be expected, according to the character of the courses attempted. The Department will encourage students from other institutions of learning to defer application for the higher degrees until the end of the first term. The following courses are available:

**VII. Pro-Seminar in European History.** This consists of the reading, translation and study of a selected chronicle. Open to graduates only. Two hours for a half year.

**VIII. The Teaching of History.** Designed to take up special problems and aids in class-room work of high school and college. Open to seniors of the Department of Education and graduates. Two hours per week, Spring term.

### POLITICAL ECONOMY.

Political Economy may be taken as a minor only. The following courses are offered:

**III. Pools and Trusts.** A study of agricultural and commercial agreements and court decisions thereon. Open to undergraduates who have completed courses I and II, and to graduates. 2 hours per week, Fall Term.

**IV. Statistics.** A study of averages, weighting, criticism, and practical exercises. 2 hours per week, Winter and Spring terms.

### POLITICAL SCIENCE.

**III. Comparative Constitutional Law.** A comparative study of the governments of the greater nations of America and Europe. Prerequisite, Political Science I. 2 hours per week, throughout the year.

### MATHEMATICS.

*Professor Boyd, Professor Davis.*

The following courses are scheduled for candidates for an advanced degree. Some however, are more distinctly graduate courses than others and so may be given different weight in counting toward a degree. It should be added that the course is flexible and subject to change, if at the opening of the year good reason arises.

**VI. Higher Algebra.** This course embraces Theory of Equations, Determinants and Vector Analysis and is given chiefly by lectures based on Burnside & Panton's Theory of Equations, Hanus's Determinants, Gibbs-Wilson's Vector Analysis. Not given in 1912-'13. 3 hours per week, throughout the year.

(REES)

**VII. Calculus and Differential Equations.** An advanced course in calculus during the Fall term based on selected chapters in Granville's & Byerly's texts. During the Winter and Spring terms an introductory course in Differential Equations is given. 2 hours per week, throughout the year.

(DAVIS)

**VIII. Teachers' Course.** 2 hours per week, throughout the year.

(DAVIS)

**IX. Advanced Analytics.** A thorough course intended to furnish the student with the extended theory connected with Conic Sections and especially with the use of abridged notations. It is an introduction to the theory of algebraic curves. Given in 1912-'13. 3 hours per week, throughout the year.

(BOYD)

**X. Projective Geometry.** This course provides a study of the content and methods of reasoning of modern synthetic geometry. The work will follow the texts of Reye and Cremona. Given 1912-'13. 3 hours per week, throughout the year.

(BOYD)

**XI. Theory of Algebraic Curves.** This course will be based upon the works of Salmon and Wieleitner and will require a reading knowledge of French and German. 3 hours per week, throughout the year.

(BOYD)

**XII. Theory of Functions of a Complex Variable.** Any introductory course to be given by lectures. 3 hours per week, throughout the year.

(BOYD)

**XIII. Potential Functions and Fourier's Series.** This course is offered for the benefit of engineering students and those majoring in Physics. The texts of Pierce and Byerly will be used. 3 hours per week, throughout the year.

(BOYD)

**XIV. Mathematics Club.** The club meets once a week. Some book is adopted for study each year and the members of the club take their turns in leading the discussion of assigned parts. In addition, numerous talks on special topics of interest are presented.

## MODERN LANGUAGES.

*Professor Zembrod.*

### FRENCH.

**IV. Romanticist Novel and Drama.** The Romanticist Novel and Drama of the 19th Century will be studied. This will be offered to a class of not less than six students. Prerequisite courses, French II and III. Two hours per week, throughout the year. Tues. 4th hour, Fri. at the 3d hour.



**GERMAN.**

**VII. 19th Century Novel and Drama.** This course will be offered to a class of not less than six students. Prerequisite courses, German V and VI. Two hours throughout the year. Mon. and Wed. at the 3d hour.

**PHILOSOPHY.**

*Professor Tigert.*

**IV. Psychology.** The purpose of this course is to investigate certain of the most important problems of abnormal psychology, such as the phenomena of dreams, hypnosis, spiritism, etc. Students are encouraged to make independent investigations and to do original work along these lines. This work is not advisable for those who have not completed a course in normal psychology. Text-book: Jastrow's *Fact and Fable in Psychology*. 2 hours per week, throughout the year.

**V. Philosophy.** This work is designed for those who desire to do advanced work in philosophy and it is essential that students should have completed one or more of the undergraduate courses before undertaking it. Here the student is introduced to the problems of philosophy proper, including metaphysics and epistemology. Under the former head, theories of cosmology, including atomism, theism, and pantheism are explained and discussed, together with the ontological doctrines of materialism, idealism, and dualism. Under the latter head, realism, phenomenalism, rationalism, and empiricism are examined with the view of forming a clear and consistent theory of knowledge. Students will be required to read the sources in connection with lectures. Text-book: Paulsen's *Introductory to Philosophy*. 3 hours per week, Fall and Winter terms.

**VI. Ethics.** This is a study of the first principles of moral science but is adapted for advanced students, especially as a continuation after completing course VI. It includes the exposition of the principles of right and wrong and endeavors to make a practical application of these. Virtues and duties are defined and discussed. Text-book: Paulsen's *System of Ethics*. 3 hours per week, Spring term.

**PHYSICS.**

*Professor Pence.*

Professor Pence will receive students wishing graduate work in Physics, provided they have the necessary preliminary training.

## AGRICULTURE.

*Dean Kastle, Professors Matthews, Garman, Hooper, Peter, La Bach, Good, Roberts, Healy, Surface.*

In the College of Agriculture and in the Experiment Station, excellent opportunities are afforded the student to do post-graduate work in the following subjects: Soil fertility, soil physics and farm crops, dairying and poultry husbandry, animal nutrition and the feeding of live-stock, the study of market classes of beef cattle, sheep and swine, agricultural chemistry, entomology, seed analysis and plant breeding, the cultivation, curing and grading of tobacco, food and drug technology, bacteriology and animal pathology, including studies in immunity, hog cholera, etc.

The Experiment Station is the Research Department of the College of Agriculture. As such it offers splendid opportunities for graduate students. Deserving students who have graduated from the College of Agriculture are given every opportunity to pursue some special line of work in the Station, where they come in contact with investigators and men of high standing in the sciences pertaining to agriculture. As a rule students who have taken such work at the Station have secured good positions elsewhere. There is now a constant demand for men trained in the several branches of Station work. The graduate student in Agriculture may select any one of the above subjects as a major study leading to the degree of Master of Science in Agriculture, subject to the approval of the Faculty of the College of Agriculture. Two or more minor subjects will be assigned by the faculty. At least one year's resident work at the University will be required of candidates for the degree of Master of Science in Agriculture, and thirty days before the close of the academic year, the candidate for this degree will be required to submit to a Committee, consisting of the Dean of the College of Agriculture and the Professors under whom the candidate has done his work, a typewritten copy of a thesis on some subject previously assigned by this Committee. The candidate for the degree of Master of Science in Agriculture will also be required to pass satisfactory examinations in his major and minor subjects.

## CIVIL ENGINEERING.

*Dean Rowe.*

### Majors.

- a. Railway Location and Construction.
- b. Yards and Terminals.
- c. Motive Power and Rolling Stock.

- d. Railway Operation and Management.
- e. Metallic Arches.
- f. Bridge Design.
- g. Reinforced Concrete.
- h. Water Power Development.
- i. Engineering Jurisprudence.
- j. Sanitary Engineering.

### **Minors.**

Minor subjects may be selected from Mechanical, Electrical or Mining Engineering subjects, or from the various departments in the College of Arts and Sciences.

## **MECHANICAL AND ELECTRICAL ENGINEERING.**

*Dean Anderson, Professors Frankel and Freeman.*

The College of Mechanical and Electrical Engineering is prepared to offer post-graduate courses in the following subjects; Steam Engineering; Electrical Power Engineering; Gas Engineering; Illuminating Engineering; Heating and Ventilating; Telephone Engineering; Mechanics of Engineering; Wireless Telephony and Telegraphy Engineering.

### **Degrees.**

The advanced degree, M. E. (Mechanical Engineer), or E. E. (Electrical Engineer), may be obtained by a resident student in one year after taking the degree B. M. E. from the State University of Kentucky, or any institution of equal requirements, provided he has done the work assigned him satisfactorily, passed his examination, and presented an acceptable thesis.

A non-resident student may obtain the degree of M. E., or E. E., three years after graduation, if he has been engaged in practical engineering work during that time, passes an examination, and presents an acceptable thesis. At least one year's notice must be given to the faculty that post-graduate work is being done and the work must be approved by the Faculty.

## **MINING AND METALLURGY.**

*Dean Norwood, Professor Easton.*

### **Advanced Degrees.**

For the degree of Mining Engineer (E. M.), Ore Dressing, Milling, Coal Mining, Metal Mining, Mine Plant, Metallurgy, or Electricity Applied to Mining, may be selected as major study; and minor studies may be assigned

from Civil Engineering, Mechanical Engineering, Electrical Engineering, Geology, Chemistry, Physics, Mathematics, Political Economy, English, Spanish and German.

For the degree of Metallurgical Engineer (Met. E.), Metallurgical Mill Construction, Ore Dressing, Milling, Fuel Testing and Purchasing, Heat Treatment of Steel (practical study), Electrometallurgy, Alloys, advanced Metallurgy (including steel and other metals), or some other approved problem in Metallurgy may be selected as major study; and minor studies may be assigned from Mining Engineering, Mechanical Engineering, Electrical Engineering, Civil Engineering, Chemistry, Physics, Mathematics, Pyrometry, Clay Burning, Electrolytic Refining, Economics, English, Spanish and German.





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